IN THE CLAIMS

1. (Previously Presented) An irrigation controller comprising:

a memory that stores a regression model;

a microprocessor that applies a current value for an environmental factor to the regression model to estimate a current evapotranspiration rate (estimated ETo), the regression model running with or without input from a local sensor; and

a mechanism that uses the estimated ETo to affect an irrigation schedule executed by the controller.

2. (Original) The controller of claim 1 wherein the regression model is based upon a set of historical ETo values and a set of corresponding historical values for the environmental factor.

3. (Original) The controller of claim 1 wherein the set of historical ETo values spans a time period of at least two days.

4. (Original) The controller of claim 2 wherein the regression model is further based upon a second set of historical values for a second environmental factor.

5. (Original) The controller of claim 2 wherein the regression model comprises a linear regression.

6. (Original) The controller of claim 2 wherein the regression model comprises a multiple regression.

7. (Original) The controller of claim 1 wherein the environmental factor is temperature.

8. (Original) The controller of claim 1 wherein the environmental factor is solar radiation.

9. (Original) The controller of claim 1 wherein the environmental factor is wind speed.

10. (Original) The controller of claim 1 wherein the environmental factor is humidity.

11. (Original) The controller of claim 1 wherein the environmental factor is barometric pressure.

12. (Original) The controller of claim 1 wherein the environmental factor is soil moisture.

13. (Original) The controller of claim 2 wherein the environmental factor is selected from the group consisting of temperature, solar radiation, wind speed, humidity, barometric pressure, and soil moisture.

14. (Original) An irrigation system comprising an irrigation controller according to claim 1, and a local sensor that provides a signal corresponding to the value for the environmental factor.

15. (Original) An irrigation system comprising an irrigation controller according to claim 1, and a receiver that receives from a distal source a signal corresponding to the value for the environmental factor.